

Field Trip Report

Dates of Trip

June 3, 2002

Trip Taken By

Jeff Patten

Itinerary

I-495 beltway in Virginia

Purpose

Watched the installation and setup of VDOT's portable non-intrusive RTMS (radar device)

People in attendance

Ed Lane VDOT, Tony Esteve FHWA, and Tom Roff FHWA

Accomplishments or Results

Ed Lane VDOT provided a demonstration of the setup, installation and calibration of VDOT's portable non-intrusive radar device (RTMS). VDOT recognized a number of years back that the road tube had major deficiencies when counting traffic on multi-lane and / or high volume locations in the State and the safety of the traffic counting crews was also an issue. This necessitated the need for the development of a portable non-intrusive system capable of counting traffic from the side or over the roadway. The RTMS device was picked because of its capable to count traffic from the side of the road and passed comparison testing against an ATR.

This system has been used to count traffic on major interstate routes for the last four years. VDOT uses 12 devices to conduct 48-hour counts at 500 – 600 sites over a three-year cycle. On a temporary basis, this device provides 48 hour counts at an ATR site where loops have failed. Each setup, installation and calibration take about 30 – 45 minutes. The device can be placed as close as 15 feet from the travel lane, but for the best results it should be placed at least 30 feet from travel lane.

The main components of this system are as follows: two 8-foot aluminum poles, metal hinged mounting bracket with pipe, two metal mounting brackets, cabinet, deep cycle battery, 241 traffic counter, solar panel, adjustable mounting bracket for the device, RTMS radar device.



Hinged Mounting Bracket with pipe



Mounting Bracket



Cabinet (241 counter, deep cycle battery and solar panel on cover)



Adjustable Mounting Bracket & RTMS Device



Adjustable Mounting Bracket

Three different methods are used by VDOT for mounting the device:
(All of these methods require that the mounting brackets, adjustable mounting bracket for the device, two aluminum pipes and the device to be assembled together prior to mounting or attaching to a sign standard or structure)

Method #1

For this method, two nylon straps are used to attach the pole to existing sign standard or structure.



Nylon Straps

Method #2

For this method, the hinged mounting bracket is attached to an I-beam sign structure and then tilted down towards the ground for the insertion of the two aluminum pipes. Next the pipes are tilted back towards the I-beam and the two mounting brackets are used to attach the pole to the I-beam.



Hinged Mounting Bracket



Mounting Bracket

Method #3

This method is used when a sign standard or structure isn't available for mounting or attaching the device to. A base is made for this method consisting of a 4-foot pipe with a diameter slightly larger than the aluminum pipe and concrete. After drilling a 4-foot hole into the ground, the four-foot pipe is placed and cemented in place with concrete. This is the simplest method to use, once the base is built, because no nylon straps or mounting brackets are used. The only step needed to mount the device is the insertion of the aluminum pipe into the 4-foot pipe in the base.



Method #1
Device Mounted to a
Sign Standard



Method #1
Device Mounted to an
Overhead Sign



Method #2
Device Mounted to an
I-beam Structure for a
Sign Standard

After each setup and installation, the device needs to be calibrated to account for the number of lanes and the distance of the device from the lanes. This calibration is completed by visually monitoring the traffic volumes and comparing it to the devices outputs. If the device is out of calibrations, the angle of the device and / or the length of the radar beams need to be adjusted. The angle of the device can be adjusted by using a socket on the end of a painter stick to turn the bolt on the adjusting bracket. The length of the radar beams can be adjusted by using the software for the device to change the sensitivity of the radar beams.

VDOT is very confident in the ability of this system to collect volume data at multi-lane and / or high volume locations; provides a safe working environment for the traffic counting crews; and is a portable and easy system to setup.